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ABSTRACT

Service industries, some manufacturing, and a concentration of retirees can provide a strong economic base in a rural area. Rapid growth of service businesses, especially wholesale and retail firms and other businesses related to tourism and recreation, attracted job-seekers to a 10-county area in the Ozark Mountains of Arkansas and Missouri during 1978-84. Newcomers were better educated and held higher paying jobs than long-term residents. The recreation businesses provided increased job opportunities for youths but tended to pay low wages and be seasonal, based on tourism patterns. Manufacturing industries provided about a fourth of the jobs in the area, many of them higher paying than jobs in the service sector. The area also benefited from the stable income and buying patterns of retirees who made up 33% of the area's adult residents. Government played a minor role in the area's economic expansion. Economic expansion in the area was dominated by wholesale and retail trade, services and tourism-related businesses. Twenty-eight percent of the area's establishments opened for business after 1970; another 23% expanded since 1978. Service-sector industries accounted for 85% of the new and 75% of the expanding businesses. (AA)

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Distribution of Employment Growth in 10 Ozark Counties

A Case Study

Victor J. Oliveira
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Abstract

Service industries, some manufacturing, and a concentration of retirees can provide a strong economic base for a rural area. Rapid growth of service businesses, especially wholesale and retail firms and other businesses related to tourism and recreation, attracted job-seekers to a 10-county area in the Ozark Mountains of Arkansas and Missouri during 1978-84. Newcomers were better educated and held higher paying jobs than long-term residents. The recreation businesses provided increased job opportunities for youths but tended to pay low wages and be seasonal, based on tourism patterns. Manufacturing industries provided about a fourth of the jobs in the area, many of them higher paying than jobs in the service sector. The area also benefited from the stable incomes and buying patterns of retirees who made up 33 percent of the adult residents.

Keywords: Immigrants, rural employment growth, rural labor force, women, youth, tourism, retirees, service businesses, recreation

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Summary

Service industries, some manufacturing, and a concentration of retirees can provide a strong economic base in a rural area. Rapid growth of service businesses, especially wholesale and retail firms and other businesses related to tourism and recreation, attracted job-seekers to a 10-county area in the Ozark Mountains of Arkansas and Missouri during 1978-84.

Newcomers were better educated and held higher paying jobs than long-term residents. The recreation businesses provided increased job opportunities for youths but tended to pay low wages and be seasonal, based on tourism patterns. Manufacturing industries provided about a fourth of the jobs in the area, many of them higher paying than jobs in the service sector. The area also benefited from the stable incomes and buying patterns of retirees who made up 33 percent of the area's adult residents. Government played a minor role in the area's economic expansion.

Economic expansion in the area was dominated by wholesale and retail trade, services, and tourism-related businesses. Twenty-eight percent of the area's establishments opened for business after 1970; another 23 percent expanded since 1978. Service-sector industries accounted for 85 percent of the new and 76 percent of the expanding businesses.

Here are the principal findings of this study:

- Immigrants tended to be better trained than long-term residents and, thus, to get better paying professional and executive jobs. Increased job training is one way to promote local residents' opportunities for higher paying jobs.

- Although recreation-based businesses accounted for 15 percent of the establishments and 16 percent of the jobs in the area, the firms tended to be small, to offer mostly part-time jobs, and to change ownership often. However, these businesses provided jobs for youths and those entering the labor force.
- Manufacturing plants are important to an area's economic growth because they tend to provide higher paying jobs.
- Retirees provide stable income and spending patterns to a community, but they can strain a community's services. Demands on medical facilities, housing, and transportation increase as the elderly proportion of the population increases.
- Government played a minor role in the area's economic growth. Few local businesses used government funds to expand or get started. Few members of the local labor force had government-sponsored training.

This study looks at a rural area in which tourism contributed significantly to the local economy to determine which industries provided what kinds of jobs, who got the jobs, and how economic growth affected the area's residents. The 10-county area was chosen to study the effects of rapid growth in a nonmetro area with many retirees and many businesses based on tourism. This study is the third of three in a series of regional studies of the effects of rural economic growth.

Glossary

Statistical testing and survey design:

Significant difference—

The difference between two variables is statistically significant at the 95-percent confidence level when the probability is 5 percent or less that the observed difference between the two variables would be this large or larger by chance. The variables tested were in the form of totals, ratios, percentages, and dollar values.

Survey sample designs—

Area frame. The area frame consisted of a two-stage stratified cluster sample, where the first stage involved sampling geographic segments and the second stage involved sampling establishments and households. The area frame provided a sample of establishments and households not identified by the list frame. The area frame and list frame together represented the total population of establishments and households.

List frame. The list frame sample was drawn from a list of nonfarm private-sector establishments and government units located in the 10-county area. A subsample of employees was drawn from the surveyed list frame establishments, becoming the list frame sample of households.

Employers, private and public sectors, and related terms:

Establishment—

An establishment is an economic unit, generally located at a single building site where business is conducted or where services or industrial operations are performed. In some cases, for example contractors, the establishment may have work crews at varying locations. A firm may consist of one or more such units.

Types of establishments—

Goods-producing. Establishments in the private sector engaged in construction, mining, and manufacturing activities. Farms were excluded from the list of establishments.

Services-producing. Establishments in the private sector engaged in wholesale and retail trade; transportation, communications, and public utilities (TCPU); finance, insurance, and real estate (FIRE); and all other

services, including hotels, personal, business, amusement, health, legal, education, and social services.

Government. Civilian Federal, State, county, city, town, or special purpose governmental units. A unit of government or a nonprofit organization funded completely or primarily by Federal, State, or local government which has sufficient management over its own affairs or taxing authority to distinguish it from the administrative structure of other governmental units. Except for U.S. Army Corps of Engineers' reservoir offices, military units were excluded from the survey.

Recreation. Eating and drinking places, lodging places, museums, and amusement and recreation services, including motion pictures.

Size of establishment—

No paid employees. Those establishments totally operated by self-employed owners or partners in June 1984 and referred to as establishments with no paid employees at the time of the interview. Some of these establishments had paid employees in 1978.

Small. Those units that employed fewer than 20 paid workers in June 1984.

Large. Those units that employed 20 or more paid workers in June 1984.

Establishment wage levels—

Mean-wage establishments. The average weekly wages paid full-time workers in the mean wage establishments ranged from \$215 to \$262 in June 1984. The authors calculated this wage by adding and subtracting 10 percent of the mean weekly wage of \$238 paid full-time workers by all establishments.

Low-wage establishments. The average weekly wage paid full-time workers was less than \$215 in June 1984.

High-wage establishments. The average weekly wage paid full-time workers was greater than \$262 in June 1984.

Structure or age of establishment—

Multiestablishments. Private-sector businesses with two or more establishments, plants, branch offices, or outlets for business. Data presented under multiestab-

lishments represent only information collected from the unit surveyed.

New establishments. Establishments which began operation in the 10-county area after 1978.

Ongoing establishments. Establishments which began operation in the 10-county area during or before 1978.

Establishment employment change, 1978-84—

Growth. Establishments that increased employment by one or more persons between 1978 and 1984.

No-growth. Establishments where employment levels declined or did not change between 1978 and 1984.

Population and employee-related terms:

Household—

A group of persons, not necessarily related by blood or marriage, whose usual place of residence is a housing unit, such as a house, an apartment, a group of rooms, or a single room occupied as separate living quarters.

Annual household income. All cash income received during the year by household members except income received from the sale of land, buildings, stock, or other capital assets.

Household member. Any person whose usual place of residence is in the housing unit that was surveyed.

Adult—

Any person 16 years of age or older in July 1984.

Labor force—

Includes only the adult population that is employed or unemployed.

Employed. Persons working for wages or salaries or who worked in their own businesses or professions or on their own farms.

Unemployed. Persons not working but looking for work or on layoffs waiting to be called back to a job.

Employment rate. The proportion of the adult population that was employed.

Unemployment rate. The proportion of the labor force that was unemployed.

Residency status—

Long-term residents. Residents who lived in the 10-county area continuously between December 31, 1968, and July 1984, or who have lived in the 10-county area continuously since turning 16 years of age.

Early immigrants. Residents who moved to the 10-county area between January 1, 1969, and December 31, 1978.

Recent immigrants. Residents who moved to the 10-county area between January 1, 1979, and July 1984.

Return immigrants. Residents who had moved from the 10-county area, lived outside the area for some time, and then moved back to the area after January 1, 1969.

New immigrants. Residents who moved to the area between January 1, 1969, and July 1984, and who had not previously lived in the area.

Employment status—

Full-time. Wage and salary workers who worked 30 or more hours per week based on most recent pay period.

Part-time. Wage and salary workers who worked less than 30 hours per week based on most recent pay period.

Recent entrants to the labor force. Persons who were not in the labor force in 1978 and who were employed 1 or more weeks in 1983.

Experienced workers. Persons who were employed 1 or more weeks in 1978 and 1983.

Self-employed. Persons who worked for profit or fees in their own businesses or professions or on their own farms.

Occupational groups—

Executive. Managerial, administrative, engineering, scientific, teaching, and related occupations, including creative artists, and nonfarm owner-operators.

Technical. Technicians, clerical, sales, service, farming, forestry, fishing, and hunting occupations, and persons living in the area who were in the military.

Production. Manufacturing, construction, mining, transport, and related occupations.

Worker ages—

Youths. Persons 16-24 years of age in July 1984.

Prime age workers. Persons 25-49 years of age in July 1984.

Older workers. Persons 50 years of age and older in July 1984.

Link-wage workers—

Persons who were sampled from the list

frame establishments surveyed and who were working for wages and salaries 1 or more weeks in 1984. Establishment data linked to the worker are for the unit from which the worker was selected in 1984.

Retirement status—

Retired person. Was self-determined by respondents. A person might be retired from one job and currently working at another job.

Retired household. A household where the head or the spouse of the head of household is retired.

Distribution of Employment Growth in 10 Ozark Counties:

A Case Study

Victor J. Oliveira and John A. Kuehn*

Introduction

In 1984, almost one quarter of the Nation's population lived in nonmetro areas (24).¹ The labor force experiences and income situation of these nonmetro people differ significantly from their metro counterparts. Historically, the labor force participation rate and the median income of families in nonmetro areas have been considerably lower (19, 22).

Several Federal economic development programs have been implemented in rural areas to improve the economic well-being of local residents. The Rural Development Act of 1972 and the Rural Development Policy Act of 1980 had explicit goals for creating jobs and increasing the incomes of rural residents (32, 34). The rationale behind these programs has been that new employment opportunities in rural areas will benefit rural residents and disadvantaged groups. The U.S. Department of Agriculture (USDA) initiated a series of surveys and studies of the economic growth process in rural areas as part of its Federal mandate to promote and monitor rural development and growth (6, 20). The purpose of these growth studies was to determine the distribution of employment and income resulting from different types of economic growth among various population groups.

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¹Italicized numbers in parentheses cite sources in the reference section at the end of this report.

This study, third in a series of three, was conducted in a 10-county area in northwest Arkansas and southwest Missouri during a period of rapid employment growth in the area. This study had three major objectives:

- To identify the employment contributions associated with different types of establishments;
- To measure the distribution of jobs in an economic area among various population subgroups, including men and women, youths and older workers, immigrants and long-term residents, and retirees;
- To analyze the roles of government in the economic growth process.

Information in this report should prove useful to economic development agencies, government program managers, and local leaders in planning effective rural development strategies in similar areas.

Background

Data on the distributional effects of economic development are needed to properly formulate and evaluate alternative rural development strategies. Surveys of rural households, private sector establishments, and governmental units are particularly useful because they can help us understand the effects of economic development on rural populations. The data of this study directly relate the characteristics of employees to

the industries in which they work in order to identify industry types most beneficial for rural development.

In 1979, USDA's Economic Research Service (ERS) began a series of three studies of the distributional effects of economic development in nonmetro areas. The overall plan was to identify a number of small geographic areas which typified general economic conditions in nonmetro areas. This identification process is necessary because nonmetro communities differ in industrial base, racial and ethnic traits, and other demographic characteristics of the population. One community cannot represent all of the nonmetro U.S. population but can typify substantial segments of that population. The relationships generated in each study will hold for other nonmetro communities with similar attributes. The same general survey and sampling procedures were used in each study to permit comparison of results among different areas.

The first study was conducted in a nine-county area of southern Kentucky, formerly a persistently low-income Appalachian area which had experienced considerable growth in a variety of manufacturing industries and in mining (6). We were especially interested in migrants and women in this study. The second study was conducted in a 10-county area of Georgia (17, 20). This area differed significantly from Kentucky because it contained a substantial black population and was an important commercial agricultural area. Manufacturing was also important in the economy of the Georgia study area.

This study covers a 10-county area of southwestern Missouri and northwestern Arkansas, formerly a persistently low-income Ozarks area, which continues to grow substantially in population, tourist industries, and retirement settlements. Retirees and recreational establishments and their employees are key target populations of interest in this study. A previous USDA study identified 21 percent of all nonmetro counties as retirement counties (4). In these areas, 15 percent or more of the net immigration between 1970 and 1980 were people 60 years or older. The importance of retirees to local, rural economies has warranted much attention from researchers (5, 7, 8, 11, 12, 21). Retirees receive money from pensions, government transfers, investments, and savings, much of which is spent in the local economy, creating a demand for goods and services (21). This demand for goods and services creates jobs in the area. Retirees also spend

more on food, medical care, entertainment, and recreation than do younger people (5). As a result, the service industry should be a large source of income in these areas. Because retirement income is more stable than employment income, retirement communities should be less affected by recessions than other communities (5).

The first objective of this study, identifying the employment contributions associated with different types of establishments, is very basic because knowing the source of jobs and the characteristics of establishments creating jobs in rural areas is important. The relative importance of establishment age, size, industry, and wage levels in generating employment opportunities has been debated. Good information on this issue is essential for formulating rural development strategies and allocating financial resources. Individual entrepreneurs may be able to identify new business opportunities, and job seekers will benefit from knowing which industries are expanding.

The second objective, measuring the distribution of jobs in an economic-growth area among various population subgroups, adds to limited information about how the benefits of economic growth are distributed among rural people. Certain groups historically have been disadvantaged in job opportunities and economic progress. Other groups have faced serious disruptions from changing industrial structures and population movements. We have limited knowledge about how jobs in growth areas are distributed among women, youth, and the elderly. Nor do we know the extent to which long-term residents and in-migrants compete for jobs, in particular the higher paying jobs.

The third objective, analyzing the roles of government in economic growth, is included because government makes an important contribution to rural job creation. Some of these roles are exclusively the sphere of the public sector (public safety) while other public sector functions (education, job placement services) overlap and supplement functions performed in the private sector (loans, health care). To formulate effective policies for rural development, government officials need to know which public sector activities are relied upon by private entrepreneurs starting or expanding businesses. Job-training programs and placement services should help disadvantaged and unemployed people get jobs. Many people believe government involvement in capital markets is essential for economic development, but we have little evidence to

assess rural employers' dependence on publicly aided capital. Federal, State, and local spending decisions for the broad goals of rural development could be improved with better understanding of which programs have had the greatest effects.

Study Area

A 10-county area in the Ozarks' upper White River basin was selected as the study site. This area includes Baxter, Boone, Carroll, Marion, Newton, and Searcy counties in Arkansas and Barry, Ozark, Stone, and Taney counties in Missouri (fig. 1).

We used four criteria in selecting the study site. First, the chosen area had to have had high population and employment growth rates during the 1970's. The study area had a 43-percent increase in population and a 41-percent increase in employment during the 1970's. Second, the area had to be a retirement center attracting retirees from a wide region. In the study site, the population age 60 or more years old increased 49 percent during the 1970's and represented 27 percent of the total 1980 population. The 1970's net immigration rate of persons who were 60 years old or over in 1980 was 53 percent and amounted to 14,700 people.² Third, the area had to be a tourism center. In the study area, wage and salaried employment in eating and drinking places, lodging places, museums, and amusement and recreation services increased 102 percent during the 1970's and constituted 12 percent of the area's total salaried employment in 1980. Fourth, the area had to be a relatively self-contained labor market. This criterion increased the probability that workers in the area would also live in the area, thus assuring an analysis of the distribution of employment growth among different segments of the resident population without undue survey costs. We used 1970 commuting-to-work data, the latest available at the time the study site was chosen. About 5 percent of the area's workers commuted into the area, and about 8 percent of the area's residents worked outside the 10-county study site.

The Ozarks' White River area is a well-known tourism and retirement area in the Midwest. A

series of dams on the upper White River have fashioned a sequence of large lakes amid the rugged Ozark Mountains. One of these, Lake Taneycomo, features a large trout fishery. Besides numerous country music shows, the area also has two large amphitheaters featuring dramatic presentations. Two large amusement parks are also in the area, Dogpatch USA and Silver Dollar City, featuring not only amusement rides but also many mountain artisans. Eureka Springs, Arkansas, presents interesting architecture clinging to mountain sides. Larger commercial centers include the cities of Harrison and Mountain Home in Arkansas and Monett and Branson in Missouri with respective 1980 populations of 9,567; 8,066; 6,148; and 2,550.

Survey Design

A major objective of the study was to identify new and existing sources of employment and to learn how these job opportunities were distributed among population subgroups. This study required a survey design which would collect data from both establishments and households and would directly link employees and their households with their employers. To account for all workers and all households in the area, the sample included small businesses with no paid employees and households with no workers. We used two questionnaires and two surveys to collect data, one for establishments and one for households. The questionnaires were adaptable to the varying circumstances of establishments and households.³

The sampling procedure for establishments required a complete list of employers and businesses in the 10-county site.⁴ We compiled the list from telephone directories, State directories of manufacturers, U.S. Bureau of the Census lists of local governments, and various trade and government directories. This list was stratified by industry and number of employees, and researchers randomly selected a fraction of the employers in each stratum for interviews. Enumerators visited the selected establishments in June 1984. The establishment questionnaire elicited data on the date the responding private establishment or

²Based on unpublished estimates of net migration of persons of retirement age prepared by Calvin L. Beale of the Agriculture and Rural Economics Division, Economic Research Service, USDA, from data from the 1970 and 1980 Censuses of Population.

³For more information on the survey design, see (6, 20).

⁴Churches, private households employing workers, and military units (other than U.S. Army Corps of Engineers' installations) were not included in the establishment universe. Farms and farm operators were not sampled as establishments but were eligible for household interviews. See app. A for details.

Figure 1
The 10-County Ozark Study Site



government unit began operation in the 10-county area; legal organization; primary product produced or service provided; current and 1978 employment, payrolls, and revenues; occupations of employees distributed by sex of employee and by full-time and part-time employment; wages paid to occupation groups; fringe benefits; turnover and vacancy problems; use of Comprehensive Employment and Training Act (CETA) or similarly subsidized workers; sources of new hires; and sources of funds for starting or expanding operations. Data for 1978 provided a base for measuring growth. We believed that 5 years was enough time for growth to occur and for its effects to be distributed throughout the economy.

The direct linkage, or cross-referencing, of workers' households with their employers used data obtained from a random sample of employees whose names and addresses came from interviewed list frame employers. Enumerators selected this sample of employees from employment rolls to form the list frame sample of households. Enumerators interviewed these workers and members of their households at their homes using the household questionnaire. Thus, we linked information about working residents with information about their employers.

Area frame samples of establishments and households supplemented the list frames in two ways. First, the area frame sample of establishments accounted for incompleteness of the employer universe list. Although we attempted to prepare a list that included all establishments, some establishments were not on the list. Enumerators attempted to contact any establishment found in the sampled land segments that was not on the universe list. Second, we used the household area frame to sample households which would not be eligible for sampling through the list frame, such as households with no employed members, households whose employed members worked in establishments within the study area but not on the universe list of establishments, or worked in establishments outside the study area.⁵

Enumerators interviewed list frame and area frame households in July 1984 using the household questionnaire. Data collected included household composition and demographics, including age, sex, relationship to the head of the household, educational attainment, marital status,

⁵Details on the survey design, stratification, sampling rates, and response rates are presented in app. A.

and health status. All persons interviewed who were 16 years and older were asked about their labor force and employment status in 1978 and 1983 and at the time of the interview in July 1984. Interviewers obtained occupation, employing industry, hours and weeks worked, and wage rates for those working. For those not working in 1978 or 1983 or at the time of interview in July 1984, enumerators collected information on primary activity, reasons for not working, and job search efforts. Interviewers asked all adults about participation in job training programs and migration to the study site. Each household reported whether any member had operated a farm in 1983 or 1978. Interviewers asked each household a series of questions on sources and amounts of income and participation in public assistance and food programs in 1983 and 1978.

Establishments furnished 617 completed reports. A total of 1,159 households containing 2,878 persons completed interviews. These counts represented an 82-percent completion rate for establishments and an 80-percent completion rate for households.

We measured the establishments and households in the study area as they existed at the time of the survey, during the height of the tourist season. Approximately 9.5 percent of the area's establishments operated no more than 8 months a year; two-thirds of these were recreation-based businesses. Enumerators asked both establishments and households to recall their circumstances in 1978.⁶

Because the data were derived from a survey rather than a complete census, all estimates of totals, proportions, and means in this report are subject to sampling error. Although a given estimate differs between two or more subpopulations or variables, the differences may not be statistically significant due to sample variation. We will restrict discussion that compares differences of subpopulations to those comparisons which are statistically significant at the 95-percent confidence level, unless otherwise noted. We did not attempt statistical testing

⁶Interviews with current populations cannot fully describe the 10-county economy as it existed in 1978 because some establishments closed or moved away between 1978 and the time of interview, and some people left the area. The study measured and analyzed the establishments and households remaining from 1978 and newcomers to the area. The survey design did not allow data collection from establishments and households that came into the study site after 1978 but were no longer there in 1984.

where the number of sample establishments, households, or persons associated with a given attribute was less than 30. The tables show when establishment, household, and person estimates were based on fewer than 10 sample observations. Such estimates typically have very large standard errors and should be interpreted with care. Appendix B explains the statistical tests.

Study Area's Economy and People

ERS selected this Ozark study area because it was a fast-growing rural economy with a tourism and retirement industry base. The substantial population of retirees allowed us to analyze how growth affects retirees.

Industrial Structure

The 10-county area's industrial structure was dominated by the services-producing sector and, in particular, wholesale and retail trades and services. About a fifth of the area's trades and service establishments catered primarily to tourism: eating and drinking places, lodging places, museums, and amusement and recreational services. Over 90 percent of the area's estab-

lishments had fewer than 20 employees. Over a third of the establishments had no paid employees. Self-employed workers accounted for 13 percent of the area's nonfarm employment. The majority of establishments paid average wages of less than \$215 per week. About 28 percent of the establishments were started after 1978, and another 10 percent had changed ownership between 1978 and 1984. An additional 22 percent of the area's establishments started business between 1974 and 1978. Approximately one-eighth of the wage and salary workers were employed part-time, less than 30 hours per week, during the summer of 1984. Recreation establishments were also affected by seasonal operations with 42 percent of them operating no more than 8 months per year.

Data from the establishment survey represented an estimated 7,180 private sector establishments and 500 government units (table 1). Both Missouri and Arkansas have special purpose districts which account, in part, for the large number of government units.⁷ These 7,180 private establishments

⁷Establishment data in this report exclude military and armed forces reserve installations except for Corps of Engineers' reservoir project offices.

Table 1—Distribution of estimated establishments and employment, by selected characteristics, June 1984

Item ¹	Establishments		Employment			
			Total		Wage and salary	
	Number	Percent	Number	Percent	Number	Percent
Type of establishment:						
Goods-producing	910	11.8	17,470	27.6	16,490	30.1
Construction, mining	450	5.8	2,350	3.7	1,840	3.4
Manufacturing	460	6.0	15,120	23.9	14,650	26.7
Services-producing	6,270	81.7	38,500	60.8	30,990	56.5
Wholesale, retail trade	2,540	33.1	16,240	25.7	13,190	24.1
TCPU and FIRE ²	920	12.0	6,470	10.2	5,750	10.5
Other services ³	2,810	36.6	15,790	24.9	12,050	21.9
Government ⁴	500	6.5	7,360	11.6	7,360	13.4
Recreation ⁵	1,160	15.1	10,050	15.9	8,370	15.3
Size of establishment:						
No paid employees ⁶	2,710	35.3	4,490	7.1	—	—
1-19 paid employees	4,440	57.8	22,400	35.4	18,540	33.8
20 or more paid employees	530	6.9	36,440	57.5	36,300	66.2
Total	7,680	100.0	63,330	100.0	54,840	100.0

— = Not applicable.

¹Establishments are those operating both in June 1984 and in 1983. Employees are June 1984 employees at these establishments.

²TCPU is transportation, communications, and public utilities; FIRE is finance, insurance, and real estate.

³Includes hotels, personal, business, amusement, health, legal, education, and social services.

⁴Includes Federal, State, county, city, town, or special purpose government agencies.

⁵Recreation totals are also included in retail trade and other services.

⁶Includes establishments operated by self-employed owners or partners with no paid employees.

were operated by 8,490 self-employed persons and 54,840 wage and salary workers. Trades and services, including recreation, accounted for 82 percent of the establishments, 88 percent of the self-employed, and 57 percent of the wage and salary workers. Recreation alone accounted for 15 percent of the area's establishments, 20 percent of the self-employed, and 15 percent of the hired workers. The 500 government units in the area accounted for only 13 percent of the wage and salary workers. Three-fourths of the government workers were employed by local government units including public school districts.

The 10-county area's economic base also included a sizable manufacturing component. Some 460 manufacturing establishments employed 27 percent of the area's hired workers. The area's emphasis on trades, services, manufacturing, and self-employed owner-operators differed from the overall U.S. nonmetro employment mix.⁸

Ninety-three percent of the establishments were small, employing fewer than 20 workers or with no paid employees and supplying 34 percent of the area's wage and salary jobs (table 1). Most of the wage and salary employment was concentrated in the 7 percent of establishments that employed 20 or more workers. Manufacturing establishments and government units had the greatest average size, 32 and 15 paid employees, respectively. Trade and service establishments were among the smallest. These two industry groups had over 2,100 establishments with no paid employees. These generally provided employment only for establishment owners and their unpaid family workers.

The area's new business growth was strong between 1974 and 1984. Fifty percent of the area's establishments were new starts since 1974. New business growth was most prevalent in construction, recreation, trades, and personal, business, and repair services. Only 21 percent of the construction establishments were in operation before 1974 with the same ownership. Similarly, the shares for establishment age were 28 percent for recreation; 36 percent for other trades, and 29 percent for personal, business, and repair services. These figures may reflect both the recent growth and the short lifespan of these industries.

⁸In 1982, nonfarm self-employed workers constituted 9 percent of the total U.S. nonmetro employment. Forty-six percent of the wage and salary workers in nonmetro areas were in trades and services, 24 percent were in manufacturing, and 19 percent were in government (27).

In contrast, nearly 50 percent or more of the establishments in manufacturing, professional services, and in the finance, insurance, and real estate (FIRE) industries had existed more than 10 years.

Seventy-five percent of the nonfarm jobs provided by the area's establishments were full-time wage and salary positions in the summer of 1984. Self-employed owners held 13 percent of the area's nonfarm jobs.⁹ About 15 percent of the wage and salary jobs were held by executives, managers, and professionals. Nearly 44 percent were held by technical workers, sales and service workers, and clerks. And the remaining 41 percent were in production and related occupations. Services-producing industries contained over 50 percent of the executive-professional occupations, and 80 percent of the technical, sales, and service workers. Manufacturing plants accounted for most of the production and related jobs.¹⁰

The average wage paid to full-time workers in the area's sampled establishments was \$238 per week in 1984 compared with a national average of \$333, both calculated on a 40-hour basis (37). Low-wage establishments were the predominant employer among those with full-time workers (table 2).¹¹ Seventy percent of the establishments were classified as low-wage, accounting for 51 percent of the full-time wage and salary workers. Low-wage establishments averaged 8 full-time employees compared with 16 for mean-wage and 19 for high-wage establishments.

Weekly wages varied across industries and among establishments within industries. Both the goods-producing and the services-producing sectors had more establishments and employees in the low-wage category than did the government sector. In turn, trades and services other than transportation, communication, and public utilities (TCPU) and finance, insurance, and real

⁹Self-employed farmers are not included in establishment-related tables. They were surveyed only through the household survey.

¹⁰See the glossary for details about the specific occupations making up each aggregate group. All occupational aggregations were based on the groupings found in the 1977 *Standard Occupational Classification Manual* (29).

¹¹The wage classifications, low-, mean-, and high-wage, refer only to relative wage levels of establishments in the area. The classification is not intended to indicate wage differences of establishments within and outside the area. Full-time employees in low-wage establishments received weekly wages averaging less than \$215 per week, full-time employees in mean-wage establishments received weekly wages averaging \$215-\$262 per week, and full-time employees in high-wage establishments received weekly wages averaging more than \$262.

Table 2—Average weekly wage levels of full-time wage and salary workers in private sector nonfarm establishments and government units, June 1984

Item	Total	Goods producers			Services producers					Government ⁴
		Total	Construc- tion, mining	Manufac- turing	Total	Wholesale, retail trade	TCPU FIRE ¹	Other services ²	Recreation ³	
<i>Number</i>										
Establishments ⁵	4,320	540	220	320	3,410	1,590	600	1,220	600	370
<i>Percent</i>										
Low-wage (less than \$215 per week)	69.8	62.6	49.7 ⁶	71.4	74.3	76.4	50.8	83.0	93.4	39.2
Mean-wage (\$215- \$262 per week)	14.4	26.9	36.9 ⁶	20.2	12.5	14.6	11.9 ⁶	10.1	4.5 ⁶	13.2
High-wage (more than \$262 per week)	15.8	10.5	13.4 ⁶	8.4 ⁶	13.2	9.0	37.3	6.9 ⁶	2.1 ⁶	47.6
<i>Number</i>										
Full-time wage and salary workers ⁷	47,840	16,120	1,740	14,380	25,470	10,370	5,430	9,670	6,180	6,250
<i>Percent</i>										
Low-wage (less than \$215 per week)	51.0	48.9	22.0 ⁶	52.2	58.0	66.0	13.3	74.4	96.5	28.0
Mean-wage (\$215- \$262 per week)	21.4	28.6	61.3 ⁶	24.6	15.4	20.6	9.1 ⁶	13.4	2.9 ⁶	27.3
High-wage (more than \$262 per week)	27.6	22.5	16.7 ⁶	23.2 ⁶	26.6	13.4	77.6	12.2 ⁶	.6 ⁶	44.7

¹TCPU is transportation, communications, and public utilities; FIRE is finance, insurance, and real estate.

²Includes hotels, personal, business, amusement, health, legal, education, and social services.

³Recreation totals are also included in trades and other services.

⁴Includes Federal, State, county, city, town, or special purpose government agencies.

⁵Includes only establishments with full-time wage and salary workers.

⁶Estimate based on fewer than 10 unweighted observations.

⁷Represents workers working 30 or more hours per week.

estate (FIRE) had more employees in low-wage categories than did goods producers. Other services (business, personal, repair, and professional) also had more establishments classified as low-wage than did goods producers. Much of this classification of services producers can be explained by the recreation industry in which 93 percent of the establishments and 97 percent of the employees were in low-wage categories. The recreation industry accounted for 13 percent of full-time employees, and 24 percent of the full-time service employment.

New jobs added during the previous 5-1/2 years furnished about 30 percent of the area's 1984 hired employment. Forty-five percent of the new jobs came in establishments starting operations in the area after 1978, and the rest were additions to older establishments. Twenty-eight percent of the establishments in 1984 were new to the area since 1978. Most of the new establishments were services producers, but some new goods producers also appeared. Surviving older establishments tended to have stable or decreasing employment. These establishments accounted for 69 percent of the area's 1984 employment. Only 37 percent of the older establishments with the same ownership in 1978 and 1984 reported more employees in 1984 than in 1978.

Area Residents

Data from the household sample represented 72,410 households and 176,040 persons (table 3). Older residents and retirees accounted for a large portion of the population in the 10-county area. Almost 35 percent of the area's residents were 55 years of age or older compared with 21 percent of the total U.S. population (24). About 33 percent of the area's adults (16 years of age or older) were retired. The head of the household or the head's spouse was retired in 44 percent of the area's households. Because retirees are generally older, and women outnumber men in the older age groups, one might expect females to outnumber males among retirees. The opposite was true in the 10-county study area. In this study, retirement status was self-determined by the respondents. Because many of the older women in the study area had never been employed outside the home, they apparently did not consider themselves "retired" from a job.

Almost 48 percent of the adult population were immigrants, having moved to the area sometime after 1968. As a group, these immigrants had lived

Table 3—Characteristics of the study area's population, July 1984

Item	Total	Nonretirees	Retirees
<i>Number</i>			
Estimated total persons	176,040	129,170	46,870
<i>Percent</i>			
Sex:			
Male	48.8	47.1	53.4
Female	51.2	52.9	46.6
Age:			
Under 16 years	20.6	28.0	0 ²
16-24 years	10.7	14.6	0 ²
25-34 years	11.5	15.7	0 ²
35-54 years	22.4	28.6	5.5
55-64 years	12.3	8.3	23.2
65 years and older	22.5	4.8	71.3
<i>Years</i>			
Mean age	41.0	30.9	69.0
<i>Number</i>			
Adult population, 16 years and older	139,860	92,990	46,870
Residency status:¹			
Long-term resident	72,830	51,240	21,590
Immigrant	67,030	41,750	25,280
<i>Percent</i>			
Early immigrant	52.0	46.5	61.2
Recent immigrant	48.0	53.5	38.8
Return immigrant	20.4	23.2	15.7
New immigrant	79.6	76.8	84.3
Schooling completed:			
Less than 12 years	35.3	29.0	47.8
12 years	42.4	47.9	31.4
More than 12 years	22.3	23.1	20.8
<i>Years</i>			
Mean schooling	11.5	11.8	10.9
<i>Number</i>			
Estimated households	72,410	40,480	31,930
<i>Persons</i>			
Mean household size	2.4	2.8	1.9
<i>Dollars</i>			
Mean household income	17,515	19,337	14,776
Per capita income	7,980	8,054	7,868

¹Long-term residents resided in the study area continuously between December 31, 1968, and July 1984. Early immigrants moved to the study area between January 1, 1969, and December 31, 1978. Recent immigrants, moved to the study area between January 1, 1979, and July 1984. Return immigrants, both early and recent immigrants, had moved from the study area, lived outside the area for some time, and then moved back to the area after January 1, 1969. New immigrants had not previously lived in the area.

²Estimate based on fewer than 10 unweighted observations.

in the area an average of 6.4 years. Forty-eight percent of these immigrants were recent immigrants, having moved to the area after 1978. Only 20 percent of the immigrants were return immigrants, who had once lived in the area, moved away, and then returned sometime after 1968. Retired immigrants were more likely than non-retired immigrants to have moved into the area before 1979. However, this does not mean that there is a decline in the movement of retirees into the area; the area continues to attract both retired and nonretired immigrants, especially the latter. Among current residents, retired immigrants averaged 1,546 persons annually during 1969-78, and 1,785 persons annually during 1979-84.¹² The number of nonretired immigrants to the area increased from an average of 1,939 persons annually during 1969-78, to an average of 4,064 persons annually during 1979-84.

The educational structure of the area's population was similar to that of the total U.S. nonmetro population. Almost 65 percent of the area's adults graduated from high school compared with 67.5 percent for all nonmetro areas (25).¹³ On average, retirees had lower levels of education than nonretirees.

The average household size, 2.4 persons, in the 10-county area was smaller than the average 2.8 persons for all nonmetro households in 1983 (26). This average was due to the large number of retired households in the area, which averaged fewer than 2 persons per household. The mean household income in the study area was \$4,045 below the average for nonmetro areas. However, because of the smaller average size of the study area's households, per capita income in the 10-county area, \$7,980, was slightly greater than that for all nonmetro areas, \$7,828 (26). Although the mean household income for nonretired households was significantly greater than that of retired households, the average per capita income for retired and nonretired households was not significantly different.

In July 1984, 51.2 percent of the study area's population was in the labor force, either working or looking for work, compared with 62.9 percent

¹²Data indicate that the population in the 10-county area increased an average 3.6 percent per year from 1970 to 1980 and an average 1.9 percent from 1980 to 1984. Based on data furnished by Calvin Beale, ARED, ERS.

¹³The educational levels for all nonmetro areas refer to persons age 18 years and older. In the 10-county study area, 66.8 percent of persons age 18 years and older completed high school.

of all nonmetro adults (table 4). The lower labor force participation rate in the study area is related to the large number of retired persons in the study area. About 6 percent of the labor force in the 10-county area was unemployed, lower than the 7.6-percent rate in all nonmetro areas (27).

Employment growth in the 10-county area provided opportunities for persons entering the labor force. Twenty-two percent of the area's work force at the time of the survey had not worked during 1978. These new entrants were predominantly youths (16-24 years of age), a group which typically has little prior work experience. Reflecting national trends, 60 percent of the new entrants of all ages were female (19).

Employment Growth

The Ozark study area has experienced considerable growth in new and expanded businesses and employment.¹⁴ Thirty percent of the wage and salary jobs in the area in 1984 were created after 1978; 45 percent of these were in new establishments. Expanding older businesses accounted for the rest. In both cases, most of the businesses and new jobs were in the services-producing sector.

Sources of New Jobs

New jobs result when new establishments open and existing firms expand. These sources of new employment provided jobs for new labor force entrants, immigrants, and displaced workers from establishments that closed. Twenty-eight percent

¹⁴The survey did not measure decreases in employment caused by firms going out of business in the area or firms changing ownership during 1978-84.

Table 4—Labor force status of adult population, July 1984

Item	10-county study area
	<i>Number</i>
Adult population	139,860
Labor force	71,600
Employed	67,350
Unemployed	4,250
Not in labor force	68,260
	<i>Percent</i>
Labor force participation rate	51.2
Unemployment rate	5.9

of the establishments started local operations between 1978 and 1984 (table 5) and accounted for 7,540 new wage and salary jobs (table 6). Development efforts should not look solely to new establishments for job creation. Ongoing establishments can expand to generate jobs. Twenty-three percent of the establishments were in business in 1978 and expanded to create 9,120 new jobs. Most of the remaining establishments either had steady or declining employment. Many were owner-operator businesses with no paid employees. Only a third had actual declines in employment. The survey design did not permit measurement of job losses associated with businesses which ceased operation before 1984.

Over half of the new establishments and half of the establishments with no employment increase had no full-time workers. Nevertheless, those businesses were important because they provided jobs for owner-operators and their families, some part-time jobs for salaried employees, and services to the community. While most of the area's

establishments were in the services-producing sector, new establishments were even more concentrated in services. Some of these new, small units may eventually expand employment, but many will probably remain small, family-operated businesses. In contrast to new and stable establishments, over three-fourths of the expanding establishments were small units with 1-19 paid employees. However, they generated only one-third of the new jobs from expansions. Most of the expanding establishments paid average weekly wages of less than \$215 (table 5).

Numbers and Types of Jobs

Ongoing establishments created more new wage and salary jobs than new establishments (table 6). Almost 70 percent of the new jobs created by expanding establishments were in firms with 20 or more paid employees in June 1984. Community development strategies need to include assistance for the expansion and retention of existing businesses. New jobs created by new establish-

Table 5—Characteristics of study area business establishments, 1984

Item	Establishments	New establishments, 1978-84	Establishments with increasing employment, 1978-84	Establishments with decreasing or steady employ- ment, 1978-84	Establishments for which 1978 information was not available ¹
<i>Number</i>					
Total	7,680	2,160	1,760	3,000	760
<i>Percent</i>					
Wage category of establishment: ²					
Low-wage	39.3	36.3	58.6	29.6	41.6
Mean-wage	8.1	6.6	12.2	7.8	3.8 ³
High-wage	8.9	1.0 ³	14.8	12.3	4.0 ³
No full-time workers	43.7	56.1	14.4	50.3	50.6
Type of establishment:					
Goods-producing ⁴	11.8	13.8	15.9	10.5	1.7 ³
Services-producing ⁵	81.7	85.6	76.0	78.0	98.3
Government ⁶	6.5	.6 ³	8.1	11.5	0
Size of establishment in 1984:					
No paid employees	35.3	48.0	4.0 ⁷	41.8	45.9
1-19 paid employees	57.8	49.0	77.9	54.2	50.3
20 or more paid employees	6.9	3.0	18.1	4.0	3.8 ³

¹These establishments changed ownership or management during 1978-84. The 1978 employment was not available for the establishments.

²Based on average wages paid to full-time workers working 30 or more hours per week.

³Estimate is based on fewer than 10 unweighted observations.

⁴Includes manufacturing, construction, and mining.

⁵Includes wholesale and retail trade; transportation, communication, public utilities; finance, insurance, and real estate; hotels, personal, business, amusement, health, legal, education, and social services.

⁶Includes Federal, State, county, city, town, or special purpose government agencies.

⁷These few establishments increased the number of owner-operators working in the business; estimate is based on fewer than 10 unweighted observations.

ments were about equally split between large and small employers. In the study area, many new small establishments furnished almost as many new jobs as did a few large new establishments. In this area, community development strategies need to focus also on small business assistance. Most of the new jobs were in the services-producing sector. Over a third of the government units either had decreases or no change in employment (table 6).

The overall average wage level in the study area was \$238 per week for full-time wage and salary employees (table 7). Overall wage levels were comparable among new, expanding, and non-expanding establishments. Wages differed significantly among major occupational groups, however, with managers and professionals receiving \$368 per week, production workers receiving \$229 per week, and sales, clerical, and service workers receiving \$199 per week. These wage differentials were typical of both expanding and nonexpanding establishments. For new establishments, however, production workers and clerical, sales, and service workers received almost equal pay.

Almost 44 percent of the area's wage and salary workers were sales, clerical, and service employees who were largely in the low-wage category (table 8). Fifty-seven percent of the area's workers were employed by the services-producing sector. New and nonexpanding establishments had relatively more employees in sales and services than did expanding establishments. Among ongoing establishments, expanding establishments had a higher proportion of production workers than did nonexpanding establishments. Expanding establishments were also larger employers than new and nonexpanding establishments, probably reflecting the role of manufacturing among expanding establishments. The proportion of males and females was about equal for all growth categories. And the proportion of part-time workers, about one-eighth, was also comparable across industry growth characteristics.

The Influence of Multiestablishment Firms

Multiestablishment firms accounted for only 17 percent of the area's private establishments but furnished 52 percent of the area's private sector

Table 6—Wage and salary employment change, by selected establishment characteristics, 1978-84

Item	Employment change created by—		
	New establishments, 1978-84	Ongoing establishments with increasing employment, 1978-84	Ongoing establishments with decreasing or steady employment, 1978-84
		<i>Number</i>	
Total wage and salary jobs	7,540	9,120	- 2,890
		<i>Percent</i>	
New jobs in establishments by wage category, 1984: ¹			
Low-wage	61.0	44.2	44.3
Mean-wage	16.1	31.9	6.1
High-wage	18.0 ²	20.5	35.0
No full-time workers	4.9	3.4	14.6
Establishments, by type, 1984:			
Goods-producing ³	33.7	39.1	20.2
Services-producing ⁴	64.2	51.5	42.5
Government ⁵	2.1 ²	9.4	37.3
Establishments in 1984 with:			
No paid employees	—	—	11.7
1-19 paid employees	49.7	32.6	22.5
20 or more paid employees	50.3	67.4	65.8

— = Not applicable.

¹Based on average wages paid to full-time workers working 30 or more hours per week.

²Estimate based on fewer than 10 unweighted observations.

³Includes manufacturing, construction, and mining.

⁴Includes wholesale and retail trade; transportation, communication, public utilities; finance, insurance, and real estate; hotels, personal, business, amusement, health, legal, education, and social services.

⁵Includes Federal, State, county, city, town, or special purpose government agencies.

wage and salary employment (table 9). Eight percent of the area's establishments reported to a headquarters office located outside the study area and furnished 31 percent of the area's private sector jobs. Multiestablishment firms were about equally represented in both the goods-producing and the services-producing sectors. However, multiestablishment firms with branch plants in the area accounted for 71 percent of the area's employment in the goods-producing sector. Area development strategies should be sensitive to possible location decisions made by outside manufacturing companies.

The Recreation Industry

Fifteen percent of the area's private establishments were directly oriented to tourism and the recreation industry (table 10). These businesses included lodging places, campgrounds, restaurants, cocktail lounges, museums, and amusement and recreation services including cinemas, music shows, and theme parks. There appears to be a high turnover of ownership of recreation businesses, since about a fourth of them had changed ownership since 1978.

Compared with all other establishments and government units, recreation establishments were more likely to be in the low-wage category. Average weekly wages of full-time employees were \$171 in recreation compared with \$249 in other sectors.¹⁵ In addition, recreation businesses relied more on part-time workers. More than 20 percent of the recreation wage and salary employees worked fewer than 30 hours per week.

Employment by Population Groups

Providing more jobs through economic growth is an important part of many rural development programs. The logic behind these programs is that increased job opportunities lead to higher incomes and generally a better quality of life. An important question when assessing policies designed to stimulate economic growth is "who benefits from the growth?" That is, how are jobs, particularly new jobs, distributed among population subgroups?

We were interested in the following groups: immigrants and long-term residents, men and women, youths and older persons, retirees and nonretirees, and recent labor force entrants and experienced workers. We used two analytical methods. The first consisted of presenting the labor force status of the total set of adults in each population subgroup and comparing the characteristics of employed persons. An estimated 67,350 employed persons lived in the 10-county area in 1984, of which 49,640 were wage and salary workers.¹⁶

¹⁵On a 40-hour basis, the national weighted average weekly wage for eating and drinking places, lodging places, and amusement and recreation services, excluding motion pictures, was \$191 in 1984 (31).

¹⁶Differences between the establishment and household survey estimates of employment in the 10-county area result from the inclusion of farmworkers in the household survey but not in establishment survey, commuting patterns of workers, household respondent identification as self-employed even though working in a family-owned corporation, and differences associated with sampling households in one case and establishments in the other.

Table 7—Average weekly earnings of wage and salary workers in new and ongoing establishments, 1984

Item	All establishments	New establishments, 1978-84	Ongoing establishments—	
			Expanding employment	Not expanding employment ³
<i>Dollars</i>				
Overall average weekly wage ¹	238	222	235	253
Average weekly wage, by occupation:				
Executive, administrative, managerial, and professional	368	382	367	365
Technical, marketing, sales, clerical, and services	199	196	191	210
Production and related occupations ²	229	201	222	267

¹Based on wages received by full-time workers in private sector establishments and government agencies. Establishments with no full-time workers are not included in this table. See table 5 for percentage of establishments with no full-time workers.

²Includes construction, mining, manufacturing, transportation and material moving, mechanics and repairers, material handlers, equipment cleaners, and general laborers.

³Includes both the 760 establishments changing management and the 3,000 establishments with decreasing or steady employment between 1978 and 1984 as listed in table 5.

Table 8—Selected characteristics of wage and salary workers in new and ongoing establishments, 1984

Item	All establishments	New establishments, 1978-84	Ongoing establishments with—	
			Expanding employment	Stable or declining employment ¹
<i>Number</i>				
Total wage and salary workers ²	54,840	7,540	29,140	18,160
<i>Percent</i>				
Sex:				
Male	53.3	52.8	53.4	53.4
Female	46.7	47.2	46.6	46.6
Full-time workers ³	87.4	82.1	89.6	86.1
Part-time workers	12.6	17.9	10.4	13.9
Wage and salary workers in establishments with:				
1-19 paid employees	33.8	49.7	23.4	44.0
20 or more paid employees	66.2	50.3	76.6	56.0
Wage and salary workers in:				
Goods-producing establishments	30.1	33.7	37.5	16.7
Services-producing establishments	56.5	64.3	46.7	69.0
Government ⁴	13.4	2.0 ⁵	15.8	14.3
Wage and salary workers, by occupation:				
Executive, administrative, managerial, and professional	14.7	11.7	15.4	14.8
Technical, marketing, sales, clerical, and service	43.7	47.2	36.5	53.7
Production and related occupations ⁶	41.6	41.1	48.1	31.5

¹Includes both the 760 establishments changing management and the 3,000 establishments with decreasing or steady employment between 1978 and 1984 as listed in table 5.

²Based on the number of full-time and part-time employees.

³Full-time workers worked 30 or more hours per week.

⁴Includes Federal, State, county, city, town, or special purpose government agencies.

⁵Estimate based on fewer than 10 unweighted observations.

⁶Includes construction, mining, manufacturing, transportation and material moving, mechanics and repairers, material handlers, equipment cleaners, and general laborers.

Table 9—Estimated number of private sector establishments and wage and salary employment, by location of headquarters, June 1984

Type of establishment	Total		Type of industry			
	Establishments	Employment	Goods-producing		Services-producing	
			Establishments	Employment	Establishments	Employment
			Number			
All private sector establishments	7,180	47,480	910	16,490	6,270	30,990
			Percent			
Single establishments	83.1	47.7	87.7	29.0	82.4	57.7
Multiestablishments	16.9	52.3	12.3	71.0	17.6	42.3
Headquarters in area	8.6	21.3	5.2 ¹	21.3	9.1	21.3
Headquarters not in area	8.3	31.0	7.1 ¹	49.7	8.5	21.0

¹Estimate based on fewer than 10 unweighted observations.

Table 10—Characteristics of recreation and other business establishments, 1984

Item	Total establishments	Other business establishments	Recreation establishments ¹
		<i>Number</i>	
Total establishments	7,680	6,520	1,160
		<i>Percent</i>	
Size of establishment:			
1-19 paid employees	57.8	57.8	57.6
20 or more paid employees	6.9	6.9	7.1
No paid employees	35.3	35.3	35.3
Wage category of establishments:			
Low-wage	39.3	37.7	48.2
Mean-wage	8.1	9.1	2.3 ²
High-wage	8.9	10.3	1.1 ²
No full-time employees	43.7	42.9	48.4
Establishments by employment change, 1978-84:			
New establishments	28.1	29.9	17.8
Growth establishments	22.9	23.4	20.4
No-growth establishments	39.1	39.5	36.5
Ownership change ³	9.9	7.2	25.3
		<i>Number</i>	
Total workers	63,330	53,280	10,050
		<i>Percent</i>	
Characteristics of workers:			
Self-employed	13.4	12.8	16.7
Wage and salary—			
Part-time	11.1	9.0	21.8
Full-time	75.5	78.2	61.5
Full-time jobs by wage establishment category, 1984—			
Low-wage	51.0	44.2	96.5
Mean-wage	21.5	24.3	2.9 ²
High-wage	27.5	31.5	.6 ²
		<i>Dollars</i>	
Average weekly wage, full-time employees	238	249	171
		<i>Number</i>	
New wage and salary jobs since 1978	13,770	11,890	1,880

¹Includes eating and drinking places; hotels, motels, campgrounds; amusement and recreation services; museums.

²Estimate based on fewer than 10 unweighted observations.

³Information for 1978 employment was not available.

The second method consisted of comparing the employer attributes associated with each employee subgroup using data which linked establishments and their employees. These linked analyses were possible because of the survey design which permitted employer and worker responses to be matched. We use the term "linked worker" when referring to data from the linked sample. This linked sample represented 25,180 wage and salary workers employed in the sampled establishments.

The total adult survey data show that almost 43 percent of the area's employed persons worked in technical, sales, clerical, and service occupations, 28 percent worked in production-related occupations, and almost 30 percent held executive, managerial, and administrative positions. This last group includes owner-operators of proprietorships and partnerships. The average weekly earnings for full-time wage and salary workers was \$240. By occupations, executive, managerial, and administrative workers earned the highest average weekly wage, \$322. Technical, sales, clerical, and service workers earned the lowest average weekly wage, \$196. Production-related workers earned an average of \$252 per week.

Analyses of the linked worker data indicated that 58.9 percent of employed persons worked in growth establishments; that is, establishments that increased their employment levels between 1978 and 1983. Another 8.5 percent of the employed persons worked in establishments that began operation after 1978, and 32.6 percent of the employed persons worked in establishments whose employment levels were stable or declined between 1978 and 1983.

Long-Term Residents and Inmigrants

Immigration is a possible response to rural employment growth. Inmigrants may compete with long-term residents for jobs. Previous research has shown that inmigrants tend to be younger, more educated, and possess greater job skills than long-term residents (6, 9, 15, 18, 20). Some reasons why better educated, more skilled individuals are more likely to migrate include the greater probability of their working in national labor markets which may require moving for career advancement; their greater affluence that permits more travel, thereby familiarizing them with different parts of the country; and the greater likelihood they have the financial resources to move among labor markets (9, 15).

The same motives that cause some individuals to achieve higher levels of education may also cause them to move to other areas seeking better, higher paying jobs. If these immigrants, who have more education and job skills than long-term residents, take most of the available jobs in the area, then rural development may be a process of hosting employment opportunities for newcomers with only minor labor market gains for the indigenous population (20).

In the study area, the labor force participation rate, employment rate, and unemployment rate did not significantly differ between long-term residents and all immigrants (table 11). However, residency status did significantly affect the type of jobs held by employed persons. Immigrants were more likely to be employed in executive and professional occupations while long-term residents were more likely to work in technical, sales, and service occupations or in production and related occupations. Employed immigrants

also received significantly greater average weekly wages than did long-term residents.

Much of the difference in occupations and average weekly wages can probably be explained by immigrants' greater educational levels. Less than 20 percent of the employed long-term residents had some college experience compared with 37 percent of the immigrants. As a group, employed immigrants completed an average of 13 years of schooling compared with only 11.5 years for employed long-term residents.

Labor market status differed significantly within the group of immigrants. Recent immigrants, those who moved to the area during 1979-84, were more likely to participate in the labor force and to be employed than were early immigrants.¹⁷ A person

¹⁷Although early immigrants included a larger proportion of retirees than recent immigrants, this result was the same when retired persons were excluded from the analyses.

Table 11—Selected characteristics of the adult population, by residency status, July 1984

Item	Residency status				
	Total	Long-term residents	All immigrants	Early immigrants	Recent immigrants
<i>Number</i>					
Adult population	139,860	72,830	67,030	34,860	32,170
<i>Percent</i>					
Labor force participation rate	51.2	51.4	51.0	46.2	56.2
Employment rate ¹	48.2	48.4	47.9	43.4	52.7
Unemployment rate ²	5.9	5.8	6.1	6.0	6.1
<i>Number</i>					
Employed persons	67,350	35,240	32,110	15,140	16,970
<i>Percent</i>					
Major occupation:					
Executive, administrative, managerial, and professional	29.5	22.2	37.5	43.7	32.1
Technical, marketing, sales, clerical, and services	42.6	45.9	39.0	32.5	44.7
Production and related occupations	27.9	31.9	23.5	23.8	23.2
<i>Years</i>					
Average age	39.8	39.9	39.7	43.9	36.0
Average education	12.2	11.5	13.0	12.8	13.1
<i>Dollars</i>					
Average weekly earnings, 1983 ³	240	222	259	275	246

¹Percentage of the adult population employed.

²Percentage of the labor force unemployed.

³Based on earnings of full-time wage and salary workers.

can participate in the labor force even though not working, so long as that person is looking for work or on layoff waiting to be called back to a job.

Recent immigrants were also more likely than early immigrants to be employed in technical, sales, and service jobs while early immigrants were more likely to be employed in executive and professional occupations. This situation could reflect the availability of new business opportunities during the earlier growth phase of the area. Early immigrants may also have had more time to benefit from promotions with increased work experience.

Analyses of the linked worker data indicate that the distribution of workers by establishment type was also related to residency status (table 12). Long-term residents were more likely to be employed in goods-producing establishments than were immigrants. This finding is also corroborated by the larger percentage of long-term residents employed in production and related occupations which are generally found in goods-producing industries (table 11). In addition, recreation establishments employed relatively more immigrants than long-term residents. One might expect that many of the immigrants working in recreation establishments would be temporary residents; that is, persons who reside most of the year outside the area and move to the area to work for the summer. However, temporary residents were almost nonexistent in the study area. About 97 percent of the study area's adults lived in the area all year.

In this retirement-tourism area, local economic growth furnished jobs for long-term residents, early immigrants, and recent immigrants. All three groups had comparable unemployment rates. Recent immigrants did participate in the labor force more than early immigrants and long-term residents. Early immigrants were able to out-compete both long-term residents and recent immigrants for jobs in the executive and professional categories, including self-employed proprietors and partners. Recent immigrants likewise held more of these jobs than long-term residents did. This finding may reflect the higher education levels attained by immigrants.

Retired Persons

Retired persons represent an important economic asset for rural communities.¹⁸ Retirees receive money from pensions, government transfers, investments, and savings, much of which is spent

Table 12—Selected characteristics of linked wage and salary employees, by residency status, 1984¹

Item	Total	Residency status	
		Long-term residents	All immigrants
<i>Number</i>			
Total linked wage and salary employees	25,180	14,230	10,950
<i>Percent</i>			
Establishment characteristics:			
Wage category— ²			
Low-wage	49.1	47.4	51.4
Mean-wage	22.3	23.4	20.7
High-wage	28.6	29.2	27.9
Type—			
Goods-producing	26.4	30.3	21.3
Government	19.0	18.0	20.3
Services-producing	54.6	51.7	58.4
Recreation	17.0	11.5	24.2
Size—			
1-19 paid employees	44.8	42.5	47.9
20 or more paid employees	55.2	57.5	52.1
Employment change, 1978-84—			
New establishments	8.5	7.8	9.4
Growth establishments	58.9	60.8	56.4
No-growth establishments ³	32.6	31.4	34.2

¹Wage and salary workers sampled from the employment roles of the surveyed establishments.

²Distribution is for establishments with full-time employees only.

³Includes establishments with change of ownership during 1978-84.

in the local economy, creating a demand for goods and services. This demand for goods and services, in turn, creates jobs in the area (1, 5, 2f). Retirees may also represent an important potential supply of labor for local businesses. Many retired persons have gained valuable job skills and experience over the course of their working careers that younger workers may lack.

In this report, retirees are persons who considered themselves retired from a job. A person may be retired from one job and currently working at another job. Although retirees made up a large part of the area's population, they had only

¹⁸Retired persons can also strain a community's services, however. The demand on medical facilities, housing, and transportation increases as the proportion of the elderly increases (7).

a minimal effect on the area's labor force. Retirees made up about 34 percent of the adults in the 10-county area, but only 6 percent of the area's work force (table 13). Only 9 percent of the area's retirees were currently employed, and they earned about 78 percent as much as nonretirees. Retirees who were currently working had an average age of almost 64 years and were more likely to be early immigrants and less educated than nonretirees.

Sixty percent of the employed retirees were self-employed, significantly greater than the 23.9 percent of nonretired workers. Older workers are more likely than younger workers to have the financial and skill resources necessary to start their own businesses (2). Many older workers who have retired from wage and salary jobs become self-employed to supplement their retirement income.

Retirees were also more likely than nonretirees to be self-employed and to work in executive and professional occupations. Most of the "executive-professionals" were self-employed owner-operators who considered themselves managers. A self-employed person may have more flexibility in choosing when to work. Older persons may be less likely to want to leave these second jobs after reaching "retirement age." Despite the large proportion of retirees in executive and professional occupations, their average weekly wage was significantly below that of nonretired workers.

Men and Women

One of the most significant changes in the Nation's labor force over the last several decades has been the increase in the number of women in the labor force (19). In 1960, women made up 32 percent of the Nation's labor force. By 1984, the share of women in the labor force had increased to 43 percent (30, 31). Over this same time period, the labor force participation rate for females increased from 36.7 percent to 53.7 percent (28). Several reasons may explain the dramatic increase of working women: more favorable attitudes toward women working outside the home, inflation that caused many households to add a second income to maintain standards of living, decisions to postpone having children and limit family size which enabled more women to work, and decreased discrimination in hiring women (19). Despite the dramatic increase in the number of women entering the labor force, labor force participation rates continued to be higher for men

Table 13—Selected characteristics of workers, by retirement status, July 1984

Item	Total	Nonretirees	Retirees
<i>Number</i>			
Total adult population	139,860	92,990	46,870
<i>Percent</i>			
Labor force participation rate	51.2	72.1	9.8
Employment rate	48.2	67.8	9.2
Unemployment rate ¹	5.9	5.9	6.3
<i>Number</i>			
Employed persons	67,350	63,050	4,300
<i>Percent</i>			
Residency status:			
Long-term residents	52.3	52.4	50.5
Early immigrants	22.5	21.7	34.4
Recent immigrants	25.2	25.9	15.1
Self-employed workers	26.3	23.9	60.6
Wage workers working:			
Full-time ²	66.0	69.1	21.2
Part-time	7.7	7.0	18.2
Major occupation:			
Executive, administrative, managerial, and professional	29.5	28.5	44.5
Technical, marketing, sales, clerical, and services	42.6	42.7	40.5
Production and related occupations	27.9	28.8	15.0
<i>Years</i>			
Average age	38.9	38.1	63.9
Average education	12.3	12.3	11.0
<i>Dollars</i>			
Average weekly earnings, 1983 ³	240	241	187

¹Percentage of the labor force unemployed.

²Worked 30 or more hours per week.

³Based on earnings of full-time wage and salary workers.

than for women. Furthermore, most of the employment growth of nonmetro women was concentrated in low-wage service sector jobs (19).

Labor force participation and employment rates were lower for women in the 10-county area than for men (table 14). Although women made up 52 percent of the adult population in the area, they accounted for only 42 percent of the area's employed persons, the same as the national nonmetro rate. Employed men and women had similar average ages, average education levels,

and residency statuses, but the characteristics of the jobs held by women were markedly different from those held by men.

Employed women were less likely than men to be self-employed, and among wage earners, were more likely to work part-time. Some women choose to work part-time so they can balance the duties of child care and other family responsibilities with the demands of employment outside the house. Less than 5 percent of the

women in the study area working part-time stated that they wanted to work full-time but could find only part-time work. Women were less likely than men to be working in the executive, professional, and production and related occupations. Women were overrepresented, in relation to men, in the technical, sales, and service occupations. Within this occupational group, women dominated the clerical occupations. On average, the weekly wage received by working women was only \$188 compared with \$281 for working men.

Both women and men had similar access to jobs in new and growth establishments (table 15). However, women were more likely to work in low-wage industries, the only significant difference in the distribution of employed men and women across any industry sector based on the linked worker sample.

Although women are entering the area's labor force in increasing numbers, men are still more likely to be employed, work full-time, hold most of the executive and professional jobs, and earn higher wages. In our study area, women were more likely to work in low-wage establishments.

Youths and Older Workers

Participation in the labor market differs significantly by age. Because younger people possess few marketable skills and little work experience, they have historically experienced high levels of unemployment and low average wages (16, 19). Youths are typically the most likely to migrate when jobs are scarce in many rural areas (6). If jobs are made available to youths, the need to migrate to other areas for work is reduced.

Youths (16-24 years old) in the 10-county area experienced lower labor force participation and employment rates and higher unemployment rates than did prime age adults 25-49 years old (table 16). The unemployment rate for youths was more than three times higher than for other adults. Employed youths, many of whom may not have yet finished their formal education, were less educated and more likely to be long-term residents than prime age adults. Youths were less likely to work in executive and professional occupations and more likely to work in technical occupations than prime age adults. Having neither the capital nor the experience needed to run a business, relatively few youths were self-employed. On average, youths earned \$81 per week less than prime age adults.

Table 14—Selected characteristics of workers, by sex, July 1984

Item	Total	Male	Female
<i>Number</i>			
Total adult population	139,860	66,830	73,030
<i>Percent</i>			
Labor force participation rate	51.2	62.0	41.3
Employment rate	48.2	58.5	38.7
Unemployment rate ¹	5.9	5.7	6.3
<i>Number</i>			
Employed persons	67,350	39,070	28,280
<i>Percent</i>			
Residency status:			
Long-term residents	52.3	52.7	51.8
Early immigrants	22.5	21.4	24.0
Recent immigrants	25.2	25.9	24.2
Self-employed workers	26.3	32.0	18.3
Wage workers working:			
Full-time ²	66.0	62.7	70.6
Part-time	7.7	5.3	11.1
Major occupation:			
Executive, administrative, managerial, professional	29.5	33.8	23.6
Technical, marketing, sales, clerical, service	42.6	31.3	58.2
Production and related occupations	27.9	34.9	18.2
<i>Years</i>			
Average age	39.8	40.4	39.0
Average education	12.2	12.1	12.4
<i>Dollars</i>			
Average weekly earnings, 1983 ³	240	281	188

¹Percentage of the labor force unemployed.

²Worked 30 or more hours per week.

³Based on earnings of full-time wage and salary workers.

Youths were disproportionately employed in low-wage, service, and recreation establishments (table 17). Nationally, youths are overrepresented in the service industries (16). Service industries, including recreation-based industries, are generally associated with low-skill, low-wage jobs and more flexible hours (13). Many youths must find time to work outside school hours. Many of these service-industry jobs are seasonal. Eleven percent of the service-producing establishments operated less than 9 months per year, including 42 percent of the recreation-based establishments. However, only 6 percent of the employed youths expected to work less than 26 weeks during the year while 87 percent expected to work more than 40 weeks in 1984. These figures were virtually the same as those of employed prime age adults and older persons. Possibly some of these full-time summer workers, especially youths, will continue part-time activity during the off season.

The labor market position of older persons also differed significantly from prime age adults. Pension benefits, Social Security, and increased

Table 15—Selected characteristics of linked wage and salary workers, by worker's sex, 1984

Item	Total	Male	Female
<i>Number</i>			
All linked wage and salary employees ¹	25,180	13,060	12,120
<i>Percent</i>			
Establishment characteristics:			
Wage category— ²			
Low-wage	49.1	42.9	55.9
Mean-wage	22.3	24.5	19.8
High-wage	28.6	32.6	24.3
Type—			
Government	19.0	19.0	18.9
Goods-producing	26.4	30.3	22.2
Services-producing	54.6	50.7	58.9
Recreation	17.0	14.3	19.9
Size—			
1-19 paid employees	44.8	45.8	43.7
20 or more paid employees	55.2	54.2	56.3
Employment change, 1978-84—			
New establishments	8.5	7.8	9.2
Growth establishments	58.9	55.9	62.2
No-growth establishments ³	32.6	36.3	28.6

¹Wage and salary workers sampled from the employment roles of the surveyed establishments.

²Distribution is for establishments with full-time employees only.

³Includes establishments with change of ownership during 1978-84.

physical ailments all affect older persons' decisions to work. Over half of the adults in the 10-county area were 50 years of age or older. Only 25 percent of these older persons were employed at the time of the survey, primarily because many older workers choose to retire rather than remain in the labor force. Older workers, who were predominantly long-term residents and achieved lower levels of education than prime age workers, were also more likely to be self-employed and, among wage earners, more

Table 16—Selected characteristics of workers, by age, July 1984

Item	Total	Age		
		16-24 years	25-49 years	50 years and older
Number				
Total adult population	139,860	18,840	49,750	71,270
Percent				
Labor force participation rate	51.2	70.8	79.6	26.2
Employment rate	48.2	60.5	76.6	25.0
Unemployment rate ¹	5.9	14.7	3.8	4.3
Number				
Employed persons	67,350	11,390	38,110	17,850
Percent				
Residency status:				
Long-term residents	52.3	71.4	44.1	57.7
Early immigrants	22.5	1.9 ²	25.3	29.6
Recent immigrants	25.2	26.7	30.6	12.7
Self-employed workers	26.3	13.6	23.4	40.5
Wage workers working:				
Full-time ³	66.0	75.0	71.1	49.4
Part-time	7.7	11.4	5.5	10.1
Major occupation:				
Executive, administrative, managerial, professional	29.5	8.4	32.1	37.3
Technical, marketing, sales, clerical, service	42.6	55.7	38.7	42.5
Production and related occupations	27.9	35.9	29.2	20.2
Years				
Average age	39.8	20.5	36.7	58.6
Average education	12.2	12.1	12.7	11.3
Dollars				
Average weekly earnings, 1983 ⁴	240	171	252	271

¹Percentage of the labor force unemployed.

²Estimate based on fewer than 10 unweighted observations.

³Worked 30 or more hours per week.

⁴Based on earnings of full-time wage and salary workers.

likely to work part time. Many older workers go from working full time to working part time before they retire from the labor market completely (10). Among full-time wage workers, older persons earned significantly higher average weekly wages than prime age workers.

The characteristics of establishments employing workers 24-49 years old did not differ significantly from those employing workers 50 years or older (table 17). That is, older workers were as likely to be employed in the same types of establishments as prime age workers.

Recent Entrants

The rationale behind many rural development programs is that employment growth increases the demand for skilled labor, which in turn results in upgrading the positions of unemployed and inexperienced workers (3). Some public officials see jobs as a way of reducing dependence on public

assistance while raising incomes and enhancing tax revenues. Data from the Ozark study suggest that employment growth in the 10-county area provided job opportunities for persons with little labor force experience. Almost 24 percent of those persons who worked 1 or more weeks during 1983 did not work during 1978. These people are referred to as recent entrants in the following discussion.

Over half the recent entrants were youths, 16-24 years old (table 18). Many of these youths were making the transition from student to worker. Because many of the recent entrants were of school age and had not finished their formal education, experienced workers were more likely to have some college background than recent entrants. Females, who accounted for only 37 percent of the experienced workers, made up 61 percent of the recent entrants.

Compared with experienced workers, recent workers were less likely to be self-employed and among wage earners more likely to work part time. Most of the recent entrants were employed in technical occupations, relatively few worked in professional occupations. The differences in occupations held by experienced workers and recent entrants contributed to the significantly higher weekly wages earned by experienced workers.

Recent entrants did not get most of the jobs associated with recent economic growth in the area. Experienced workers were as likely to be employed in new and growth establishments as recent entrants. However, recent entrants were significantly more likely to be employed in low-wage industries than were experienced workers (table 19). Recent entrants were also more likely to work in services-producing establishments and recreation establishments than were experienced workers.

Economic growth provided employment opportunities for persons with limited work experience (mostly youths and women). However, most of the jobs held by recent entrants were low-wage jobs. Recent entrants found jobs in new and growth establishments to the same degree as experienced workers, but recent entrants were significantly more likely to work in low-wage establishments and services-producing industries, including recreation establishments, than experienced workers were. As recent entrants gain work experience and job skills, however, they should be able to move into higher wage establishments

Table 17—Selected characteristics of linked wage and salary workers, by age, 1984

Item	Total	Age		
		16-24 years	25-49 years	50 years and older
<i>Number</i>				
All linked wage and salary employees ¹	25,180	4,500	14,920	5,760
<i>Percent</i>				
Establishment characteristics:				
Wage category— ²				
Low-wage	49.1	62.4	45.8	47.5
Mean-wage	22.3	17.7	20.8	29.6
High-wage	28.6	19.9	33.4	22.9
Type—				
Government	19.0	4.7 ³	20.6	26.1
Goods-producing	26.4	29.1	28.7	18.3
Services-producing	54.6	66.2	50.7	55.6
Recreation	17.0	30.7	13.7	14.9
Size—				
1-19 paid employees	44.8	51.5	45.4	38.0
20 or more paid employees	55.2	48.5	54.6	62.0
Employment change, 1978-84—				
New establishments	8.5	16.5	6.4	7.6 ³
Growth establishments	58.9	55.5	63.1	50.6
No-growth establishments ⁴	32.6	28.0	30.5	41.8

¹Wage and salary workers sampled from the employment roles of the surveyed establishments.

²Distribution is for establishments with full-time employees only.

³Estimate based on fewer than 10 unweighted observations.

⁴Includes establishments with change of ownership during 1978-84.

and professional occupations to the same degree as more experienced workers.

Roles of Government in Employment Growth

Government may contribute to rural job creation because it adds to communities' total employ-

Table 18—Selected characteristics of recent entrants and experienced workers, 1983

Item	Employed in 1983— ¹		
	Total	Also employed in 1978	Not employed in 1978 (recent entrants)
	<i>Number</i>		
Employed persons	74,060	56,610	17,450
	<i>Percent</i>		
Residency status:			
Long-term resident	51.3	47.6	63.4
Immigrant	48.7	52.4	36.6
Sex:			
Male	57.3	62.8	39.5
Female	42.7	37.2	60.5
Age:			
16-24 years	16.7	5.1	54.3
25-34 years	22.9	24.0	19.5
35 years and older	60.4	70.9	26.2
Education:			
Less than high school	23.9	22.2	29.3
High school	48.8	48.4	50.2
Some college	27.3	29.4	20.5
Self-employed	26.4	29.4	16.6
Wage workers working:			
Full-time ²	65.1	65.0	65.1
Part-time	8.5	5.6	18.3
Major occupation:			
Executive, administrative, managerial, and professional	29.7	34.8	13.2
Technical, marketing, sales, clerical, and services	42.8	38.2	57.7
Production and related occupations	27.5	27.0	29.1
	<i>Dollars</i>		
Average weekly earnings, 1983 ³	252	279	169

¹Includes persons working 1 or more weeks some time in 1983.

²Worked 30 or more hours per week.

³Based on earnings of full-time wage and salary workers working 1 or more weeks in 1983.

ment and income levels. Government can also provide capital and technical assistance for private sector establishments and can provide the physical and social infrastructure which supports private business operations.

Government as an Employer

In the 10-county study area, some 500 government units, including public school districts, provided 7,360 jobs, or 13 percent of total wage and salary jobs (table 1). This figure is lower than the 1982 national nonmetro rate of 19 percent (22). About a third of these jobs were with Federal and State government units. Nearly 45 percent of the government employees worked in high-wage units with average weekly wages greater than \$262 (table 2).

Growth in government employment in the study area was minimal. Most government units, 69 per-

Table 19—Labor force experience of workers, by selected characteristics of industries in which workers were employed, 1984

Item	Total	Linked worker's employment status in 1984	
		Experienced worker	Recent entrant
		<i>Number</i>	
All linked wage and salary employees ¹	25,180	18,990	6,190
		<i>Percent</i>	
Industry characteristics:			
Wage category— ²			
Low-wage	49.1	44.6	63.4
Mean-wage	22.3	24.3	15.7
High-wage	28.6	31.1	20.9
Type—			
Government	19.0	19.6	17.0
Goods-producing	26.4	28.6	19.8
Services-producing	54.6	51.8	63.2
Recreation	17.0	13.7	27.0
Size—			
1-19 paid employees	44.8	43.5	48.9
20 or more paid employees	55.2	56.5	51.1
Employment change, 1978-84—			
New establishments	8.5	7.6	11.1
Growth establishments	58.9	59.0	58.5
No-growth establishments ³	32.6	33.4	30.4

¹Wage and salary workers sampled from the employment roles of the surveyed establishments.

²Distribution is for establishments with full-time employees only.

³Includes establishments with change of ownership between 1978 and 1984.

cent, did not expand employment. Many government units were special purpose districts in the area, staffed only by volunteers or a few paid employees in both 1978 and 1984. Only 6 percent of the area's new jobs were in government units, although 37 percent of the measurable decline in jobs occurred in government units (table 6).

Government as a Source of Capital

One objective of this study was to determine the extent to which public sector funds expanded employment opportunities in the area. We asked private sector establishments the following question regarding sources of funds:

Since January 1, 1972, were the following sources of capital used to finance outlays for land, buildings, or equipment when first locating in the 10-county area or for any expansions that resulted in more persons being employed by this unit?

We followed this question with a list of sources, including public agencies, private sector financial institutions, savings or retained earnings, personal noncommercial loans, and corporate stock.

The role of government in providing direct capital to private businesses in the area was limited. Only 5 percent of the establishments used a public agency's direct or guaranteed loan during the preceding 12 years to start or expand their businesses (table 20). Large establishments benefited more from public funds than did small establishments. Goods producers were more likely to use public sources of funds than services producers. Publicly assisted capital may have been a significant source of funds for a few businesses, but overall, dependence on government capital was minimal in the study area.

About half of all private sector establishments used internal sources (retained earnings, savings, or sale of corporate stock) to fund startups or expansions. About half also used external sources (private sector financial institutions and personal noncommercial borrowing). Some establishments used more than one source of funds. Small establishments with no paid employees or part-time employees only more often depended on internal sources of funds than on external sources. One can assume that small family-operated businesses rely on their own savings for startups and expansions.

Table 20—Distribution of private sector establishments by sources of capital for establishment or expansion, January 1972 to December 1984

Private sector establishments	Establishments	Sources of capital ¹		
		Retained earnings, savings, or sale of corporate stock	Private sector or personal loans	Public agencies
	Number	Percent		
All establishments	7,180	51	52	5
Establishment wage category:				
Low-wage	2,870	49	56	12
Mean-wage	570	30	67	4
High-wage	500	38	47	5
No full-time employees	3,240	59	46	3
Type of industry:				
Goods-producing	910	56	58	12
Services-producing	6,270	50	51	3
Size of industry:				
1-19 paid employees	4,060	47	54	4
20 or more paid employees	430	44	61	13
No paid employees	2,690	59	46	3
Single establishments	5,960	54	54	5
Multiestablishments	1,220	38	39	3

¹Private sources of capital include banks and savings and loan institutions. Public sources of capital include loan guarantees or capital borrowed directly from such public agencies as the Small Business Administration, Farmers Home Administration, Economic Development Administration, or through State or local bond issues. An establishment may have used more than one source; thus, the percentages may not add to 100.

Employment Services and Training

Government, among its other activities in economic development, also provides job training programs and employment services for unemployed, low-skilled, inexperienced, and displaced workers. However, the rate of participation in formal employment and training programs by the area's adults was low. In July 1984, among the population 16 years and older, only 8 percent had participated in a formal job training program (table 21). Government agencies, including public schools, the military, and other government units, sponsored 62 percent of the job training received by the area's residents.

Participants in job training programs, whether sponsored by governments or other organizations, were more likely than nonparticipants to be in the middle age group of 25-34 years old, to have had some college education, and to be recent immigrants to the area. Seventy-two percent of the job training participants were employed compared with 46 percent of the nonparticipants. When type of training is considered by broad occupational categories, the occupations most represented were sales and clerical positions, mechanics, and repair and production positions. About 87 percent of all participants completed their training, and 59 percent of those said their training led to a job or promotion.

The occupations for which most trainees prepared corresponded with the occupations employers indicated they had difficulty in filling, in particular, sales, clerical, and service workers. About 43 percent of all employers reported they had difficulty in finding qualified persons to fill positions (table 22). Larger employers had more difficulty finding qualified employees than did small employers.

Use of State employment agencies by establishments seeking workers and by people looking for jobs was limited compared with the numbers of employers and workers who used more informal search methods (table 23). About a fifth of the establishments hiring workers in 1984 and about a tenth of the workers hired since 1984 used State employment agencies. Most job-seekers and employers depended upon walk-ins and referrals from friends and other businesses.

Relatively few workers in the area participated in the Job Training Partnership Act or Women in Need (WIN) programs. Only about 200 workers were in positions where the salary was paid or supplemented by Federal or State employment

programs during the summer of 1984. Most of these worked in government units.

Government Infrastructure

While governments' direct role in employment, grants and loans, employment services, and job training was minimal, government outlays have contributed to public infrastructure which supports private business operations. Between 1978

Table 21—Selected characteristics of participants and nonparticipants in job training programs, July 1984¹

Item	Participants in job training	Nonparticipants in job training
	<i>Number</i>	
Adult population	9,860	130,000
	<i>Percent</i>	
Sex:		
Male	55.0	47.2
Female	45.0	52.8
Age:		
16-24 years	12.8	13.5
25-34 years	66.6	33.2
35 years and older	20.6	53.3
Education:		
Less than high school	8.2	37.3
High school	46.9	42.1
Beyond high school	44.9	20.6
Residency status:		
Long-term resident	37.5	53.2
Early immigrant	19.1	25.4
Recent immigrant	43.4	21.4
Employment status:		
Employed	72.4	46.3
Unemployed	10.4	2.5
Out of labor force	17.2	51.2
Occupation trained for:		
Executive	7.6	—
Professional and technical	16.6	—
Sales and clerical	26.4	—
Service	14.8	—
Construction, transportation, and equipment operators	9.5	—
Mechanics, repairers, and production workers	23.8	—
Laborers and military	1.3 ²	—

— = Not applicable.

¹Includes job training received in high school, college, public vocational school, private professional or occupational school, the military, private firms, and the government. Excludes informal on-the-job instruction or courses taken at elementary and high school or college for the purpose of completing graduation requirements.

²Estimate based on fewer than 10 unweighted observations.

and 1984, 26 percent of the area's governmental units started new services or expanded existing services for capital infrastructure projects including water and sewer systems, road construction, and solid waste collection and disposal. Social services, including public housing, emergency medical services, public health services, and educational facilities, were developed or expanded by 22 percent of the government units. Eleven percent also increased outlays for public safety including fire, police, and jails. Prior to the 1970's, U.S. Army Corps of Engineers' investments in large reservoirs provided the base for much of the area's recreational facilities.

Potential Labor Force

Over 50 percent of the adults living in the 10-county area at the time of the survey were not working. These people represent a large potential labor force to support future job growth. However, not all of these nonworkers have the skills, training, experience, or desire to find employment.

Table 22—Establishments reporting difficulty in finding qualified persons, by establishment characteristics, 1984

Item	Total establishments	Establishments with difficulty in finding qualified workers
	Number	Percent
Establishments with one or more employees ¹	4,970	42.7
Establishment wage categories:		
Low-wage	3,020	46.8
Mean-wage	620	57.2
High-wage	680	32.7
No full-time employees	650	20.1
Type of establishment:		
Goods-producing	580	54.2
Services-producing	3,910	41.5
Government	480	39.0
Size of establishment:		
1-19 paid employees	4,440	40.4
20 or more paid employees	530	62.1
Employment change, 1978-84:		
New establishments	1,120	45.0
Growth establishments	1,690	46.5
No-growth establishments ²	2,160	38.5

¹Establishments operated solely by self-employed owners or partners are excluded from this table.

²Includes establishments with change of ownership between 1978 and 1984.

The characteristics of these potential workers and the reasons they were not working are presented in tables 24 and 25.

Less than 6 percent of the persons not currently employed were unemployed individuals seeking work and available for immediate employment. The distribution of the unemployed by sex was similar to that of employed persons. However, compared with employed persons, the unemployed were younger and less well educated. Employed workers, on average, completed almost a full year of schooling more than did the unemployed.

The largest group of nonworkers were persons not in the labor force who had worked prior to 1978. This group is made up largely of retirees with an average age of 68. On average, these people last worked almost 15 years ago. Almost 90 percent of this group said they were not interested in paid employment.

The second largest group of nonworkers consisted of persons not in the labor force who had worked within the last 5 years. These people had an average age of 51.7 years and completed 11.3

Table 23—Methods used by establishments to locate employees and methods used by employees to find jobs

Item	Establishments reporting hires in 1984 ¹	Workers starting jobs since 1978 ²
	Number	
Establishments and workers	2,700	33,980
	Percent	
Methods used to locate workers or jobs: ³		
State employment agencies	23.2	10.2
Walk-ins	44.1	50.5
Local or national advertisements	21.0	4.3
Referrals ⁴	48.8	43.0
Other sources ⁵	25.6	8.4

¹Fifty percent of the new and ongoing establishments with one or more paid employees had new hires in 1984.

²Data were not obtained from persons who were employed in their current primary job prior to 1978.

³Because some establishments and persons used more than one source, percentages will not add to 100.

⁴Includes referrals by friends, relatives, and other establishments.

⁵Includes vocational schools, unions, colleges or universities, private employment agencies, and other sources not already identified.

years of schooling. Most (73.2 percent) of this group stated they were not interested in paid employment, but almost 20 percent said they were interested in working, but had to care for a child or adult or did not have transportation.

Over 8,000 persons in the study area had never worked. These people were predominantly women, had low levels of schooling, and were about 42 years old on average. Almost 15 percent of this group could not work because of ill health; another 22 percent wanted to work but could not because of family responsibilities or inadequate transportation.

The area's low unemployment rate suggests that if the area's industries want to increase the size of their labor force, the pool of unemployed workers in the area may be inadequate to meet this increased demand for labor.¹⁹ This situation is especially true of those positions that require high levels of education. Persons not in the labor

¹⁹The area's unemployment rate was 5.9 percent compared with 7.6 percent for all U.S. nonmetro areas (28).

force would probably not enter the labor force to fill the labor needs of the area's industries. Many of those persons not in the labor force were older persons or retirees, had levels of education below those of employed persons, and were not interested in paid employment. Thus, immigrants may be the means of supporting additional job growth in the area, especially for positions requiring high levels of education.

Implications

The 10-county Ozark area has prospered with tourism and an influx of retirees. Community and area leaders interested in further economic development may need to pursue several strategies to ensure continued growth.

The area's new business growth was strong with 28 percent of the establishments beginning operations since 1978. However, turnover of business ownership is high in the area. Ten percent of all the establishments in 1984 and 28 percent of the recreation businesses, had changed

Table 24—Adult population, 16 years and older, not employed in July 1984, by previous work experience

Characteristics	Persons not employed				
	Total	Unemployed	Not in labor force		
			Worked some time between January 1978 and January 1984 ¹	Worked prior to January 1978 ¹	Never employed
<i>Number</i>					
Adult population	72,510	4,250	20,310	39,920	8,030
<i>Percent</i>					
Sex:					
Male	38.3	55.2	42.9	36.4	27.2
Female	61.7	44.8	57.1	63.6	72.8
Age in 1984:					
16-24 years	10.3	46.2	10.7	0 ²	41.5
25-54 years	21.6	51.4	33.3	12.4	22.4
55 years and older	68.1	2.4 ²	56.0	87.6	36.1
Education:					
Less than high school	47.0	33.0	41.1	49.2	58.5
High school	35.8	46.2	38.3	34.2	31.9
Beyond high school	17.2	20.8 ²	20.6	16.6	9.6
<i>Years</i>					
Average age	58.7	32.4	51.7	68.4	41.6
Average years of school completed	10.9	11.3	11.3	10.7	10.4
Average length of time since last worked	—	3	2.8	14.8	—

— = Not applicable.

¹Includes persons who worked 1 or more weeks for pay or were self-employed.

²Estimate based on fewer than 10 unweighted observations.

³Average not shown because the unemployed included 248 persons who had never worked; 92 percent of the unemployed workers had worked since January 1978.

Table 25—Reasons given for not looking for work by the adult population, 16 years and older, by previous work experience

Item	Persons not in the labor force, July 1984			
	Previous work experience			
	Total	Worked sometime between January 1978 and January 1984 ¹	Worked prior to January 1978 ¹	Never employed
<i>Number</i>				
Adult population	68,260	20,310	39,920	8,030
<i>Percent</i>				
Discouraged worker ²	1.1	2.1 ³	0 ³	3.8 ³
Ill health	8.1	6.5	7.5	14.9
Not interested in paid employment	80.5	73.2	88.6	59.1
Interested in paid employment but could not work ⁴	10.3	18.2	3.9	22.2

¹Includes persons who worked 1 or more weeks for pay or were self-employed.

²Includes persons who had stopped looking for work because they believed none was available.

³Estimate based on fewer than 10 unweighted observations.

⁴Includes persons who were interested in paid employment, but had to care for a child or sick or aged adult or did not have transportation to and from a work place.

ownership since 1978. Small business assistance, including technical and educational programs and capital financing, can help such firms survive and expand later. A longer tourist season would also help both owners and workers in recreation businesses.

Establishments with headquarters outside the area accounted for almost half of the area's employment in goods production. Civic leaders in rural areas should be sensitive to problems encountered by branch establishments. Establishments with absentee owners may be lured away more easily than establishments with local owners. Industry visitation programs coupled with local government assistance in solving industry problems can help retain these establishments.

The recreation industry contributed significantly to the area's economic growth, accounting for 15 percent of the establishments and 16 percent of the workers. However, encouraging growth in recreation industries may not be an economically sound rural development strategy for many areas. The Ozark area is endowed with resources, such

as mountains and lakes, that attract many tourists to the area. Many areas may not have the resources needed to support recreational establishments. Even areas with the potential for recreation-based growth should note that the Ozark area's recreational industry was characterized by small firms, a high percentage of part-time jobs, and a high ownership turnover among establishments.

Over half of the area's jobs, including most of the new jobs since 1978, were in the service sector. Jobs in service sector establishments, especially in recreation establishments, typically paid low weekly wages on average. However, low-paying jobs are better than unemployment. These jobs may also provide youths and new entrants to the labor force with opportunities to gain the work skills and experience necessary to climb the job ladder.

Rural areas may need to attract and promote higher paying industries such as manufacturers and other goods producers rather than service industries. These higher paying industries may provide the means for rural workers to increase their economic well-being.

Local institutions should also increase and target job training programs to local residents who have been disadvantaged in obtaining high-wage and professional-executive jobs in relation to immigrants. These immigrants on average had more education than long-term residents. Increased job training is one way to help local residents get higher paying jobs. Such training would also benefit youths and new entrants to the labor force.

Local areas should not lose sight of the importance of retirees to the economy. Although retirees were only a small portion of the study area's labor force, they represented a significant source of income. Within the study site, the per capita income in retirees' households was about the same as that in nonretirees' households. Because retirees' income is more stable than employment income, retirement communities may be less sensitive to recessions than other areas. Continued promotion of retirement centers depends upon the area's amenities. These amenities include not only the natural resources of an area, but also private and public facilities, such as housing, transportation services, medical care facilities, and retail trade merchants that cater to the needs of the elderly.

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Appendix A: Survey Design and Procedures

Researchers from the Economic Research Service (ERS) designed the study, developed the questionnaires, edited the data, and conducted the analysis. Statisticians from the Statistical Reporting Service (SRS), now the National Agricultural Statistics Service (NASS), participated in developing the sample and survey materials. Data were collected by enumerators from the Little Rock, Arkansas, and Columbia, Missouri, SRS offices.

A random stratified multiple-frame design was used to survey employers and households. The establishment list frame was composed both of private sector and public sector employers and businesses. The list frame of establishments was constructed from telephone directories, Government census lists, State directories of manufacturers, and contacts with local officials. Military installations, other than U.S. Army Corps of Engineers' dams and reservoirs, were excluded from the list frame as were traditional agricultural farms and churches. However, some specialized activities, classified as agriculture, for example, worm farms, were included. Also included were church-affiliated groups offering social services, for example, day care centers and camps. The list frame of private businesses included each establishment of the same firm and each independent company at the same location. For government units, each location or establishment was separately included on the list frame except for county and city governments where all functions and all locations were combined as one entry on the list frame. Separately incorporated housing authorities were listed separately.

A sample of establishments was selected for interviews. The characteristics of employers were based on this sample. A sample of persons employed in the sample establishments, including owner-operators of proprietorships and partnerships, was selected for interviews in the household survey. This sample of employees became the list frame for the household sample and the basis for the linked worker sample.

Area frames were used to account for the incompleteness of the list frames. The establishment area frame was used to estimate those establishments not on the list. The household area frame was used to collect data on those households whose members were either all unemployed, out of the labor force, self-employed in agriculture, employed by establishments not

on the list, employed by establishments on the list that refused to participate in the survey, or employed outside the study area.

The establishment sample was stratified by Standard Industrial Classification (SIC) and by three size groups as measured by the number of employees (33). There were eight groups: (1) manufacturing; (2) mining, construction, and other goods producers; (3) transportation, communications, public utilities, finance, insurance, and real estate; (4) recreation, including eating and drinking places, lodging places, museums, and amusement and recreation services; (5) wholesale and retail trade other than eating and drinking places; (6) services other than those listed in recreation; (7) governments of counties and towns with 1980 populations of more than 1,000 people; and (8) all other government units. The three establishment size groups were based on number of employees: (1) 19 or fewer employees, including those with no paid employees; (2) 20-99 employees; and (3) 100 or more employees (app. table 1).

The employer size groups were not proportionately distributed; thus, each employer size group was sampled at a different rate to assure a representative sample. Private and public establishments with 19 or fewer employees were sampled at the rate of 1 in 13. Units with 20-99 employees were sampled at a rate of one in four. All large establishments with 100 or more employees were surveyed. Two exceptions to these overall establishment sampling rates were incorporated into the sample design. First, all counties and all towns with more than 1,000 population in 1980 were enumerated. Second, manufacturing and recreation establishments with 19 or fewer employees were sampled at the rate of 1 in 10. A replacement was not selected when a list frame establishment with fewer than 100 employees refused to participate in the survey. Information collected from the establishments included principal products or services provided, total employment for 1978 and 1984, and employment characteristics such as occupations and sex of workers, part-time and full-time workers, and average wage and salary of full-time workers.

Before the enumerator concluded the interview with a sampled list frame establishment, the enumerator drew a random sample of employees from the establishment's list of current employees, including proprietors and partners actively working in the business. Each employee selected from the list became part of the list frame for households and was interviewed at home.

Enumerators collected information on household composition, characteristics of household members, employment status, employment history back to 1978, types of jobs held by all household members 16 years or older, residency

status, and household income. The establishment's identification was included on the employee's questionnaire, thereby assuring that linkage could be made with the unit's characteristics during data analysis.

Appendix table 1—List frame universe and sample of establishments, employees, household members, and employer-employee link sample, by stratum

Industry and size stratum ¹	Establishment universe	Establishments (primary sample units)		Employee household completions ³	Employee household members completions	Employer-employee link sample	
		Completions	Out of business ²			Employers	Employees
Number							
Mining and construction:							
Small	514	22	44	22	55	14	22
Medium	8	2	0	2	5	2	2
Large	1	0	0	0	0	0	0
Manufacturing:							
Small	259	121	1	26	52	16	26
Medium	53	8	0	17	33	6	17
Large	33	17	0	44	81	12	44
TCPU and FIRE: ⁴							
Small	713	36	2	32	61	26	32
Medium	30	5	0	8	13	4	8
Large	4	3	0	7	12	2	7
Recreation: ⁵							
Small	1,174	77	16	75	156	57	75
Medium	70	10	0	23	42	10	23
Large	9	8	0	32	56	7	32
Wholesale and other retail trade:							
Small	2,025	96	25	84	165	63	84
Medium	37	5	0	9	23	5	9
Large	3	2	0	0	0	0	0
Other services:							
Small	1,631	62	14	54	109	43	54
Medium	22	5	0	6	11	3	6
Large	3	3	0	11	20	3	11
Governments of counties and large towns:							
Small	8	8	0	20	43	8	20
Medium	13	13	0	36	74	13	36
Large	5	5	0	11	23	3	11
Other government:							
Small	320	24	0	23	39	17	23
Medium	55	8	0	24	43	6	24
Large	11	11	0	23	54	9	23
Total	7,001	450	62	589	1,170	329	589

¹Small, fewer than 20 employees; medium, 20-99 employees; and large, 100 or more employees.

²Establishments that were part of the sample but had terminated operation by the survey date.

³In situations where a household had more than one member employed by a list frame employer, we adjusted the household expansion factor to reflect the household's increased probability of being selected.

⁴TCPU is transportation, communication, and public utilities. FIRE is finance, insurance, and real estate.

⁵Recreation includes eating and drinking places; hotels, motels, campgrounds; amusement and recreation services; and museums.

The sampling rate of employees also varied by establishment size. Employees in establishments with 19 or fewer employees were sampled at a rate of one in three. Employees in establishments with 20-99 employees were sampled at a rate of 1 in 15. And employees in establishments with 100 or more employees were sampled at a rate of 1 in 60. At least one employee or owner-operator was sampled at every establishment.

The supplemental area frame sample for households and establishments was stratified into eight classes, or strata, based on three land use patterns, percentage of elderly residing in the area, and proximity to a lake (app. table 2). Urban strata generally had over 20 dwellings per square mile; suburban strata were small towns with generally 10-20 dwellings per square mile; and rural strata were open country areas with generally fewer than 20 dwellings per square mile. Elderly strata had at least 40 percent of their population over age 65. Lake strata were located near reservoirs and did not have at least 40 percent of their population over age 65. In the urban strata, a segment was approximately a city block; in the suburban strata, the segment was about one-eighth of a square mile; and in the rural strata, a segment was about 1 square mile. The segments were sampled at varying rates ranging from 1 in 7 for the urban elderly strata to 1 in 56 for the rural

strata not near a lake and not having many elderly people (app. table 2). The household sampling rate within the sampled segments was one in four for all area frame strata. Enumerators interviewed all establishments not included on the list frame of establishments that were found in the sampled segments.

The survey field work was divided into three phases. Phase 1 involved identifying households and establishments in the area frame. The area frame sample was a two-stage stratified cluster design, where the first stage of sampling was the segment and the second stage was the household or establishment. Phase 2 involved interviewing the selected list frame establishments and obtaining the employee list. Phase 3 required screening area frame households and area frame establishments. During phase 3, enumerators also interviewed employee households obtained from employer lists during phase 2. The enumerators collected data by conducting personal interviews during the 1984 summer. The questionnaires from households and employers were edited to detect and correct omissions and inconsistencies. Completed questionnaires were obtained from 545 private sector establishments, 72 public sector units, and 1,159 households which contained 1,719 members aged 16 and over (app. table 3).

Appendix table 2—Area frame universe, sample segments, and completions for establishments and households, by stratum

Stratum	Segment universe	Segments sampled	Establishments		Households		
			Segments with one or more completions	Employer completions	Segments with one or more completions	Completions	
						Households	Household members
<i>Number</i>							
Urban elderly	349	50	19	58	28	49	38
Urban	375	40	9	11	21	31	27
Suburban elderly	536	72	16	38	62	232	185
Suburban lake	263	34	8	9	21	50	50
Suburban	466	40	17	28	32	96	98
Rural elderly	388	34	3	6	18	29	28
Rural lake	429	30	2	3	15	20	22
Rural	5,616	100	7	14	53	63	101
Total	8,422	400	81	167	250	570	549

Appendix table 3—Questionnaires completed by establishments and households, by sample frame

Sample frame	Establishment questionnaires completed	Household questionnaires completed	Questionnaires completed for household members 16 years and older
<i>Number</i>			
Establishments:			
Private sector	545	—	—
List frame	381	—	—
Area frame	164	—	—
Public sector	72	—	—
List frame	69	—	—
Area frame	3	—	—
Total establishments	617	—	—
Households:			
List frame	—	589	1,170
Area frame	—	570	549
Total households	—	1,159	1,719

— = Not applicable.

Appendix B: Calculation of Variance Statistics

The complexity of the survey design precluded using simple random sample formulas to calculate certain variance statistics required to test differences among means, proportions, and totals. We estimated the variance statistics required for testing using the following formulas. We used the same formulas to calculate variances for the population and for subclasses. In situations where the subclass size was considerably less than the total number of primary sample units (establishments and area segments), the resulting estimate may seriously underestimate the subclass variance (14). Unless otherwise noted, we performed no statistical testing unless the subclass contained at least 30 observations.

For the variance of total estimates, the formula (14, p. 135) is:

$$V(\hat{Y}) = \sum_{h=1}^H (1-f_h) F_h^2 \frac{n_h}{n_{h-1}} \left[\sum_{i=1}^{n_h} Y_{hi} - \frac{Y_h^2}{n_h} \right]$$

f_h = the primary sample unit sampling rate for the hth stratum,

F_h = expansion factor for the hth stratum,

n_h = the number of primary sample units in the hth stratum, and

Y_{hi} = the variable to be estimated within the ith primary sample unit and hth stratum where:

$$Y_h = \sum_{i=1}^{n_h} Y_{hi}$$

For the variance of ratio means, the formula (14, p. 207) is:

$$V(R) = V\left(\frac{\hat{Y}}{\hat{X}}\right) = \frac{1}{\hat{X}^2} [V(\hat{Y}) + R^2 V(\hat{X}) - 2R \text{COV}(\hat{X}, \hat{Y})]$$

For the variance of a difference between two ratio means or two totals, the formula (14, p. 209) is:

$$V(R - R') = V(R) + V(R') - 2 \text{COV}(R, R')$$

We assumed the covariance term to be zero in all comparisons in the report. Although the clustering aspect of the survey design may underestimate the variance if the covariance term is not included, we did not consider the bias serious (14).

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